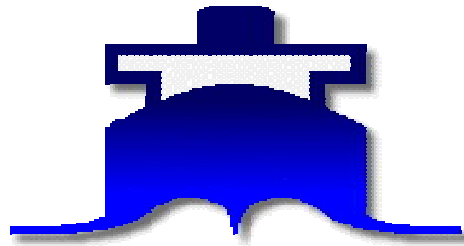

United States Coast Guard

Waterways Management



Providing navigation
safety information for
America's waterways

Jorge Arroyo
Office of Navigation Systems
U.S. Coast Guard
Washington, DC

Towing Safety Advisory Committee
Ft. Lauderdale, FL
May 7th, 2009



Homeland
Security



Shipboard AIS



Homeland
Security



AIS Rulemaking [Changes in **Bold-type**]

- ✓ 10/23/03 current AIS requirement (33 CFR 164.46)
- ✓ 07/01/03-01/09/04 sought AIS expansion comment
- ✓ 10/31/05 - notice expansion of AIS to **all** waters
- ✓ 12/16/08 NPRM ...4/15/09 comment deadline
- Could effect 17,442 vessels / 14,506 small biz's, i.e.
 - Commercial self-propelled vessels of ≥ 65 feet
 - **No exclusions**
 - Towing vessels ≥ 26 feet & >600 hp
 - Vessels with ≥ 50 passengers (vice 150 for hire)
 - **Hi-speed passenger vessels (≥ 12 pax)**
 - **Certain dredges & floating plants, &**
 - **Vessel moving certain dangerous cargoes**

Estimated Expanded AIS Population	
Ships ≥ 65ft	2,973
Freight Ship	298
Industrial Ship	748
MODU	210
OSV	553
Research Vessel	97
School Ship	19
Tank Ship	122
Unclassified	385
Unknown	541
Fishing ≥ 65ft	5,520
Documented	4,571
Undocumented (est.)	949
Towing ≥ 26ft & ≥ 600hp	4,560
Passenger	3,235
≥ 65 ft	2,167
$<65'$ but ≥ 50 pax	1,062
>30 kts & >12 pax for hire	6
Dredges	35
Total (U.S.)	16,323
Foreign Flag ≥ 65ft	1,119
Total (All)	17,442

Noteworthy Proposed AIS Rule Changes...

Spells out 'effective operating conditions' which now includes the:

- ability to reinitialize the AIS**
- ability to access AIS from conning position**
- accurate broadcast of an official MMSI**
- accurate input, upkeep, and updating**

Noteworthy Proposed AIS Rule Changes...

- **AIS (& assoc. sensors) shall remain on when:**
 - underway
 - at anchor
 - moored in or near a channel or fairway
- **Except if it compromises safety or security**
 - Non-transmitting must be logged & reported

Noteworthy Proposed AIS Rule Changes...

- AIS is primarily for the person controlling the vessel, who must maintain a periodic watch
- AIS does not relieve you of sound, lights or shapes nor radiotelephone requirements
- AIS messaging must be in English & solely for navigation safety information
- AIS Pilot Plug requirement extended to any vessel subject to pilotage & limits the distance between it & an AC outlet to no more than 3'



Noteworthy Proposed AIS Rule Changes...

Applies to all navigable waters, no exemptions.

Individual yearly deviations/waivers permissible, but, only for vessels:

- that solely operate within a very confined area
e.g. shipyard, fleeting area, etc.**
- on short & fixed schedules
e.g. a bank-to-bank river ferry service**
- otherwise not likely to encounter other AIS**

Noteworthy Proposed AIS Rule Changes...

CG type-approved Class B are permissible, but, not recommended on vessels that are:

- **highly maneuverable**
- **navigate at high speed**
- **routinely operate in congested waters, or**
- **operate in close-quarter situations**

Should cautionary note be mandatory provision?

AIS Comment Period...

- **Public Meetings**

- **Washington, DC – March 5th, 2009**

- **30+ attendees, 11 commenters**

- **Seattle, WA – March 25th, 2009**

- **30+ attendees, 12 commenters**

- **Comment period closed: April 15th, 2009**

- **Public Submissions**

- **80+ submitters, 70+ regarding AIS**



Some AIS Public Comments or Concerns

- Undue economic burden
- Not capturing total economic impact—ECS added
- Don't need it...I've never collided...I have VMS
- Not here...not needed...exempt my waterway
- Will not help security...all vessel needed
- Exempt tows >1200hp, assist towers, pax >150
- Waivers indefinite or >1 year

Some AIS Public Comments or Concerns

- Continuous operation on unmanned moored vessel
- Carriage on floating plants and/or other vessel that lack onboard power
- AIS Class B yes...on hi-speed vessels no
- AIS conning information from display-less Class B
- Would attract vessels and/or disclose fish areas
- Extend implementation period >7months

February 25, 2009



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Docket Details

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Title Vessel Requirements for Notices of Arrival and Departure, and Automatic Identification System

Type Rulemaking

Sub Type Commercial Vessels

Sub Type Level 2

Disposition Pending

Action Office G-LRA

Docket Subject Subject: Vessel Requirements for Notices of Arrival and Departure, and Automatic Identification System

Docket Parties

DMS Docket No.

RIN

Docket Close Date nulldate

Documents

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Document ID	Title	Date Posted	Type	Views	Add Comments
USCG-2005-21869-0001	Vessel Requirements for Notices of Arrival and Departure, and Automatic Identification System	12/16/2008	RULES		
USCG-2005-21869-0002	Regulatory Analysis & Initial Regulatory Flexibility	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0002.1	Regulatory Analysis & Initial Regulatory Flexibility	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0003	Valuing Mortality Risk Reductions in Homeland Security Regulatory Analyses - Final Report June 2008	12/16/2008	SUPPORTING & RELATED MATERIALS		
USCG-2005-21869-0003.1	Valuing Mortality Risk Reductions in Homeland Security Regulatory Analyses - Final Report June 2008	12/16/2008	SUPPORTING & RELATED MATERIALS		



NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD



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Automatic ID System (AIS)

- [AIS Overview - What is AIS?](#)
- [How AIS Works](#)
- [What AIS Broadcasts](#)
- [Types of AIS](#)
- [AIS Messages...](#)
 - ["A" Position Report](#)
 - ["A" Static](#)
 - ["B" Position Report](#)
- [AIS Certification](#)
- [Carriage Requirements](#)
- [AIS References](#)
- [AIS Notices](#)
- [Frequently Asked Questions](#)
- [Ask a Question or Report an AIS Problem](#)

Primary Mission Areas:

- [Global Positioning System](#)
- [Differential GPS](#)
- [Nationwide DGPS](#)
- [LORAN C](#)
- [Inland River Vessel Movement Center](#)
- [Long Range Identification and Tracking](#)
- [Civil GPS Service Interface Committee](#)
- [Automatic Identification System](#)
- [Electronic Navigation & Charting](#)
- [Maritime Telecommunications](#)

Maritime Information:

FREQUENTLY ASKED QUESTIONS

1. What is the AIS?
2. What is the AIS rule?
3. Are there alternatives to the AIS rule for small businesses?
4. How much does an AIS cost?
5. How does AIS help to increase security?
6. When must AIS be in operation?
7. Does the installation of the AIS require additional equipment in order for the AIS to operate properly?
8. Will it be necessary to have electronic navigational charts for use with the AIS?
9. If a fishing vessel has a Vessel Monitoring System (VMS), is that an acceptable substitute for the AIS?
10. Why have some AIS units stopped broadcasting valid position reports?
11. Why am I unable to see an AIS vessels' name or other static information (dimensions, call sign, etc.)?
12. Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
13. I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
14. Do AIS Class B devices meet current USCG AIS carriage requirements?
15. Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?

1. What is the AIS? Per 47 CFR §80.5 AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. Read more on what it is, how it works, what it broadcasts, and, the messages it uses, etc.

2. What is the AIS rule? The U.S. Coast Guard has developed rules applicable to both U.S. and foreign-flag vessels that require owners and operators of most commercial vessels to install and use the AIS. The AIS rule is part of our domestic and international effort to increase the security and safety of maritime transportation. See 33 CFR parts 26, 161, 164, and 165. Current AIS regulations, 33 CFR §164.46, became effective on November 21, 2003, and, require that all vessels denoted 33 CFR § 164.46(a) be outfitted with an USCG 'type-approved' and 'properly installed' AIS no later than December 31, 2004. Read more.

3. Are there alternatives to the AIS rule for small businesses? No, there are no special provisions or alternatives in the AIS rules for small businesses. See Small Entity Compliance Guide to AIS.



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Read more at www.navcen.uscg.gov



AIS Rulemaking [Changes in **Bold-type**]

- ✓ 10/23/03, current AIS requirement published (33 CFR 164.46)
- ✓ 07/01/03-01/09/04, 3 meetings & comment period re: AIS expansion
- ✓ 10/31/05, agenda entry re: expansion of AIS to **all** navigable waters
- ✓ 12/16/08, NPRM published; 04/15/09, comment deadline (73 FR 78295)
- Proposed compliance date: NLT 7 month after Final Rule
- AIS prices: Class A, \$2,800-5,000; Class B, \$700-1,500
 - Installation cost will vary by display options & interfacing
 - SOLAS requires interfacing to GPS, THD, ROT, back-up power
- Potentially could effect 17,442 vessels/14,506 small biz's, i.e.
 - Commercial self-propelled vessels of ≥ 65 feet
 - **No exclusions**
 - Towing vessels ≥ 26 feet and > 600 hp
 - Vessels with ≥ 50 passengers (vice 150 for hire)
 - **Hi-Speed vessels with ≥ 12 passengers for hire**
 - **Certain dredges & floating plants, &**
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Noteworthy Proposed AIS Rule Changes...

Spells out 'effective operating conditions' which now includes the:

- ability to reinitialize the AIS (i.e. password),
- ability to access AIS from conning position,
- accurate broadcast of an official MMSI,
- accurate input, upkeep, and updating

Noteworthy Proposed AIS Rule Changes...

Spells out that 'effective operating conditions' includes:

- AIS always on (& its associated devices) when
 - underway
 - at anchor, or
 - moored in or near a channel or fairway;

except when use would compromise safety or security
—which must be logged & reported to the USCG.

Noteworthy Proposed AIS Rule Changes...

- AIS is primarily for use of the person controlling the vessel, who must maintain a periodic AIS watch.
- AIS does not relieve one of duties regarding sound, lights or shapes nor radiotelephone requirements.
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- AIS Pilot Port/Plug requirement extended to any vessel subject to pilotage & limits the distance between it & an AC outlet to no more than 3 feet.

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Applies to all U.S. Navigable Waters, no exemptions.

Individual yearly deviations/waivers permissible, but, only for vessels:

- solely operate within a very confined area
e.g. shipyard, fleeting area, etc.
- on short & fixed schedules
e.g. a bank-to-bank river ferry service
- otherwise not likely to encounter other AIS users

Noteworthy Proposed AIS Rule Changes...

Use of CG type-approved Class B is permissible, however, not **recommended** on vessels that are:

- highly maneuverable
- navigate at high speed
- routinely operate in congested waterways, or
- operate in close-quarter situations

Should this recommendation be mandatory?

AIS Class A & B Comparison	Class A	Class B/CS
Transmit Power	2w	12.5w / 2w (low-power)
Reporting Rate	2 - 10 sec - speed and/or course dependent	30 sec. fixed
Communication Protocol	SO-TDMA Self-Organizing amongst Class A's	CS-TDMA Carrier-Sense(s), polite to Class A's
Frequency Range & Bandwidth	156.025 -162.025 MHz @ 12/25 kHz DSC Required	161.500 - 162.025 MHz @ 25 kHz DSC & 12.5 kHz Optional
Position Source	External GNSS & Internal GPS	Internal GPS
Digital Interfaces	2 Input-Output Ports & Multiple Outputs	Optional
Display	Multiple Keyboard Display (MKD)	Optional
Safety Text Messaging	Receive & Transmit	Transmit Optional & Pre-configured
Data	All	No Rate of Turn, Navigation Status, Destination, ETA, Draft, IMO#
CG Type-Approvals	22 Models - 16 Manufacturers	8 Models - 8 Manufacturers
Approximate Cost	\$2,800 - 4,000	\$700 - 1,500



**Homeland
Security**



Other USCG AIS on goings...

International Standards (completed or in final stages)

- IEC 62288 – Nav Information on Shipboard Displays
- IEC 62388 – Radar
- IEC 62376 – ECDIS
- IEC 62287 – AIS Class B
- IEC 62320 – AIS Aid to Navigation (ATON)
- IEC 61097 – AIS Search & Rescue Transmitter (SART)
 - In Final Stage, we expect availability later this year
- IEC 61993-2 – AIS Class A, 2nd Generation AIS...in development...2010








VTs AIS Binaries Project (Receive & Transmission of AIS from ashore)




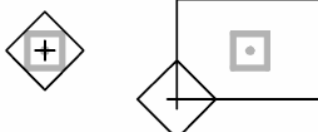
- ACOE Real-Time Current Velocity (RTCV) – 10 sites in the works
- Tampa Bay (NOAA PORTS)
- Stellwagen Bank (Right Whale Notifications)

Nation-wide AIS Project (NAIS)

- Increment 1 – Completed Oct'07
- Increment 2 – Awarded Dec'08, IOC '11, FOC '14
- Increment 3 – Satellite reception tests in progress

Recommended AIS target symbols

AIS target	Symbol number	Symbol	Description of symbol
AIS target (sleeping)	1		An isosceles, acute-angled triangle should be used with its centroid representing the target's reference position. The most acute apex of the triangle should be aligned with the heading of the target, or with its COG ¹ , if heading information is not available. The symbol of the sleeping target may be smaller than that of the activated target.
Activated AIS target	2A		An isosceles, acute-angled triangle should be used with its centroid representing the target's reference position. The most acute apex of the triangle should be aligned with the heading of the target, or with its COG ¹ , if heading information is not available.
	2B		The COG/SOG ¹ vector should be displayed as a dashed line starting at the centroid of the triangle. The heading should be displayed as a solid line of fixed length starting at the apex of the triangle. A flag on the heading indicates a turn and its direction in order to detect a target manoeuvre without delay.
	2C		A path predictor may also be provided.
Selected target	3		A square indicated by its corners should be drawn around the target symbol.
Dangerous target	4		A bold line clearly distinguishable from the standard lines should be used to draw the symbol. The size of the symbol may be increased. The target should be displayed with; vector, heading and rate of turn indication. The symbol should flash until acknowledged. The triangle should be red on colour displays.
Lost target	5		A prominent solid line across the symbol, perpendicular (for example at right angles) to the last orientation of the symbol should be used. The symbol should flash until acknowledged. The target should be displayed without vector, heading and rate of turn indication.

Symbol Name and Description	Symbol Graphic(s)
<p>2.11 AIS Search and Rescue Transponder</p> <p>An AIS Search And Rescue Transponder (SART) shall be presented as a circle with an "X" inscribed inside it. The circle shall be 5 millimetres in diameter. The symbol shall be drawn using a thick dashed line style with the colour red.</p> <p>The symbol shall flash until acknowledged by the user.</p> <p>Once acknowledged, the symbol shall cease flashing.</p> <p>NOTE: A radar scans for X-band SART detects signal, consists of pulses, on the screen are displayed, originating at the target and spaced 0.6 nautical miles along a line of bearing screen. (See I</p>	
<p>Virtual AIS ATON:</p> 	
<p>Real AIS ATON:</p>  <p>NOTE: Examples showing the default symbol for a buoy.</p>  <p>NOTE: Examples showing the symbol for an offshore platform.</p>	



Other USCG AIS on goings...

International Standards (completed or in final stages)

- IEC 62288 – Nav Information on Shipboard Displays
- IEC 62388 – Radar
- IEC 62376 – ECDIS
- IEC 62287 – AIS Class B
- IEC 62320 – AIS Aid to Navigation (ATON)
- IEC 61097 – AIS Search & Rescue Transmitter (SART)
 - In Final Stage, we expect availability later this year
- IEC 61993-2 – AIS Class A, 2nd Generation AIS...in development...2010

VTs AIS Binaries Project (Receive & Transmission of AIS from ashore)

- ACOE Real-Time Current Velocity (RTCV) – 10 sites in the works
- Tampa Bay (NOAA PORTS)
- Stellwagen Bank (Right Whale Notifications)

Nation-wide AIS Project (NAIS)

- Increment 1 – Completed Oct'07
- Increment 2 – Awarded Dec'08, IOC '11, FOC '14
- Increment 3 – Satellite reception tests in progress



42.4nmi X 29.0nmi | NorthUp | manual-follow | warn:OFF | user: none
POS: AIS

Tampa Bay Environmental Report

Sensor	Wind (Gust)	Tide	Current	Temp
0 PORT MANATEE	4(7)kts@142°	2.7ft✓	-.kts@----	---F
1 ST. PETERSBURG	7(8)kts@146°	3.1ft✓	-.kts@----	---F
2 OLD PORT TAMPA	5(8)kts@128°	3.3ft✓	-.kts@----	---F
3 MCKAY BAY ENTR	8(10)kts@133°	3.2ft✓	-.kts@----	---F
4 BERTH 223	5(7)kts@126°	---ft--	-.kts@----	---F
5 OLD PORT TAMPA	---(---)kts@----	---ft--	1.2kts@214°	---F
6 SEABULK	5(7)kts@118°	---ft--	-.kts@----	---F
7 SUNSHINE SKYWA	---(---)kts@----	---ft--	1.3kts@238°	---F
8 -----	---(---)kts@----	---ft--	-.kts@----	---F
9 -----	---(---)kts@----	---ft--	-.kts@----	---F
10 -----	---(---)kts@----	---ft--	-.kts@----	---F

Exit



Other USCG AIS on goings...

International Standards (completed or in final stages)

- IEC 62288 – Nav Information on Shipboard Displays
- IEC 62388 – Radar
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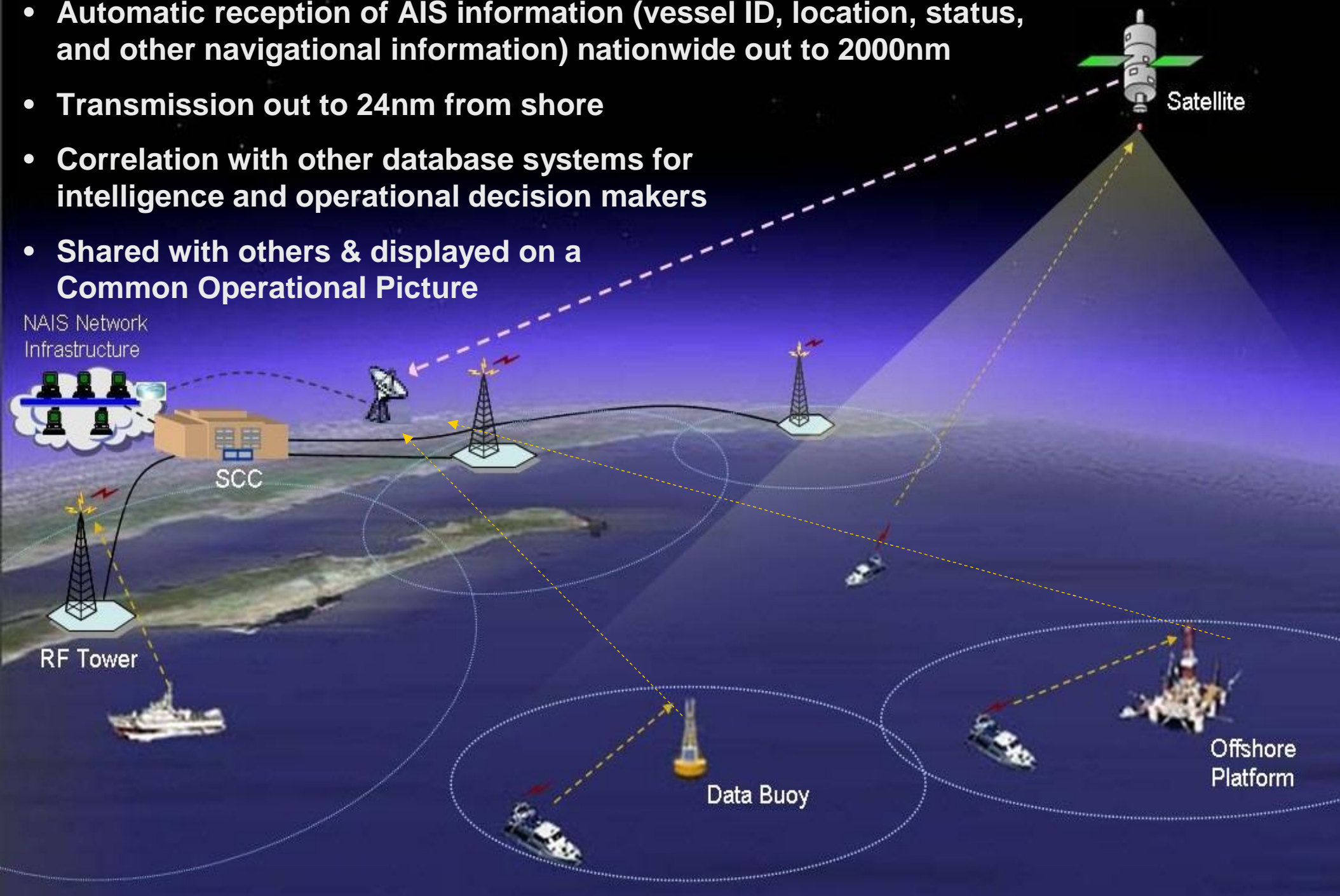
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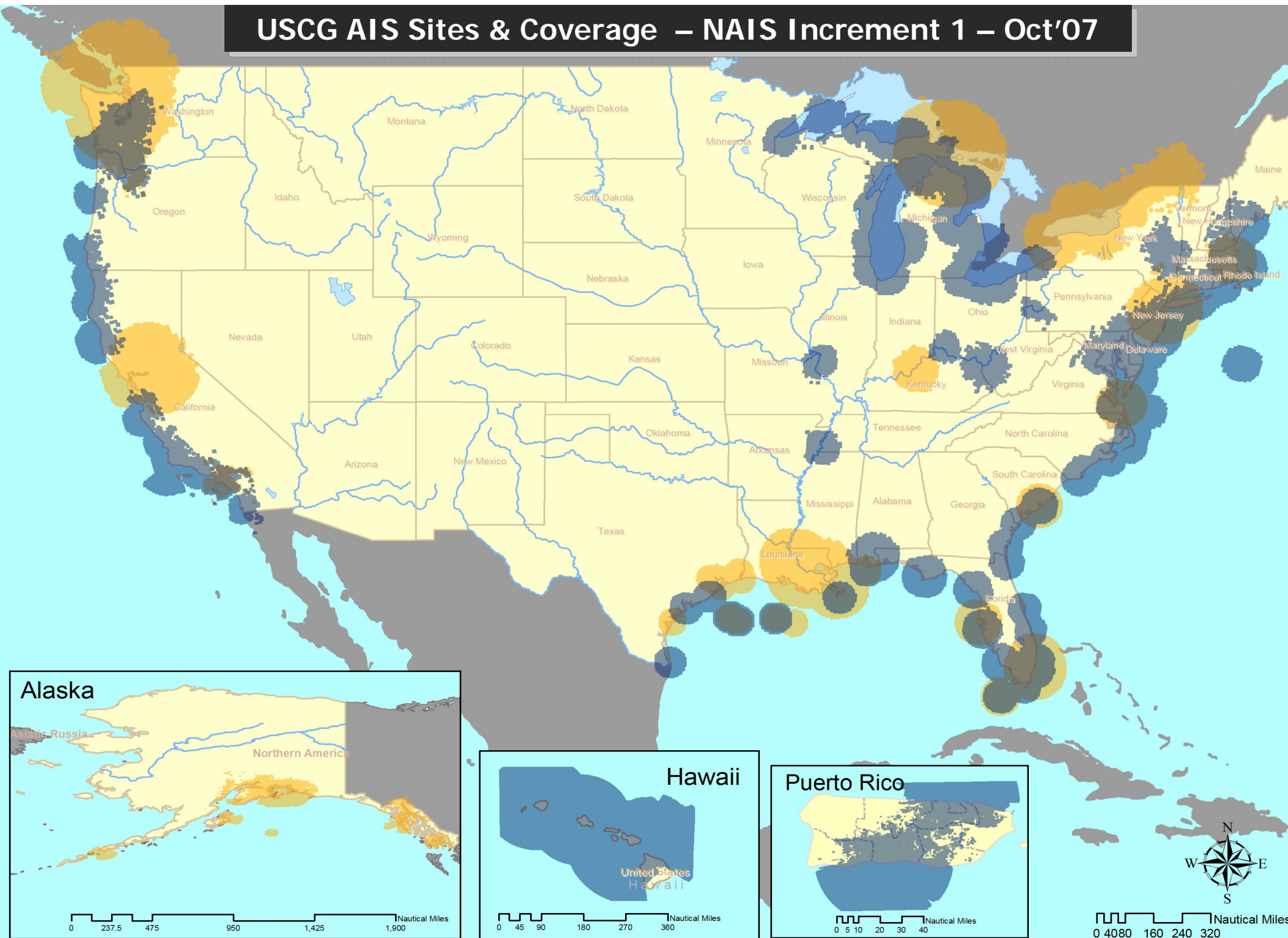
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Nation-wide AIS Project Conceptual Overview

- Automatic reception of AIS information (vessel ID, location, status, and other navigational information) nationwide out to 2000nm
- Transmission out to 24nm from shore
- Correlation with other database systems for intelligence and operational decision makers
- Shared with others & displayed on a Common Operational Picture



USCG AIS Sites & Coverage – NAIS Increment 1 – Oct'07

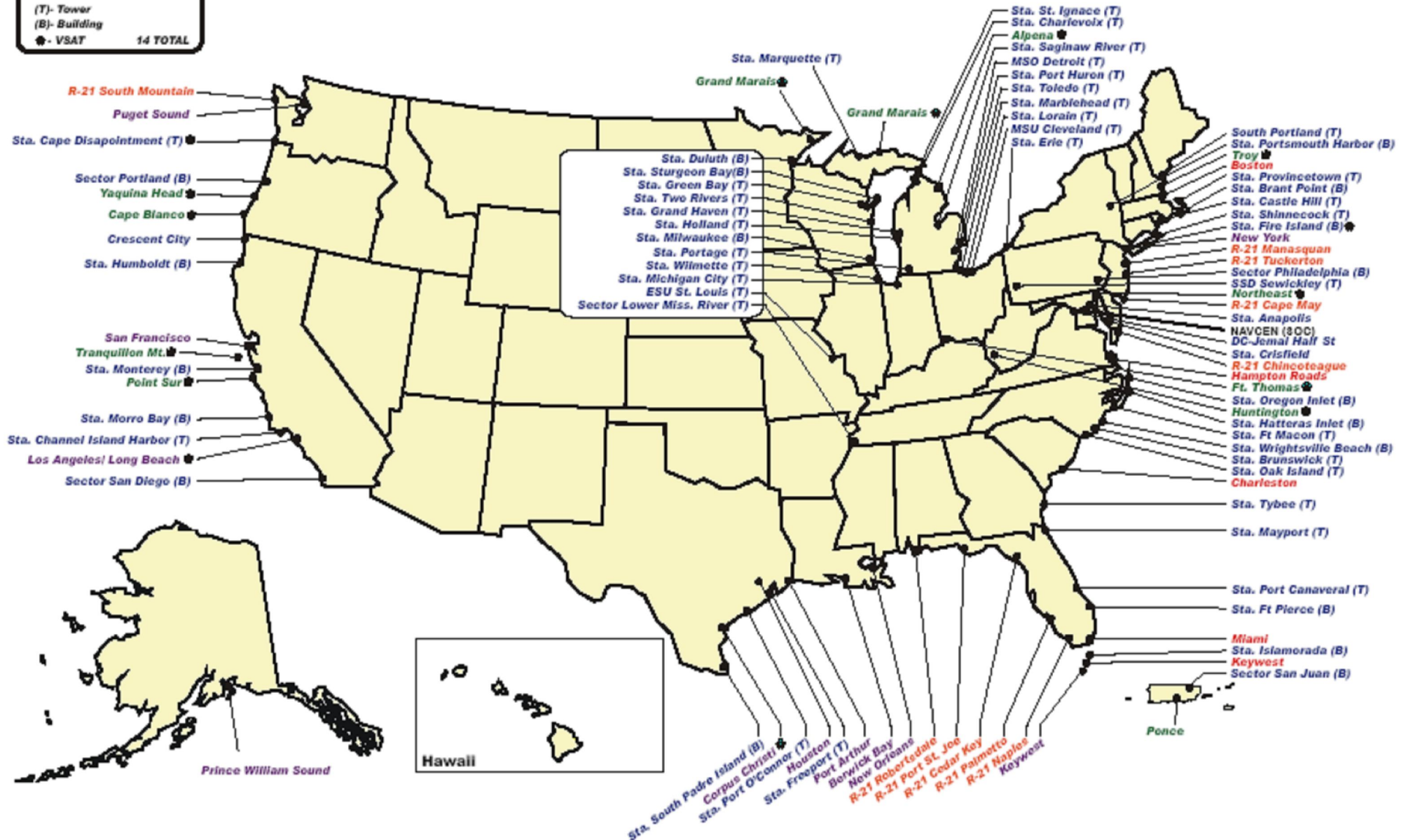


NAIS

1/2008

Green- NDS 11 TOTAL
 Red- Hawkeye 5 TOTAL
 Blue- CG Facility 74 TOTAL
 Orange- R21 10 TOTAL
 PURPLE- VTS 11 TOTAL
 SOC 1 TOTAL

(T)- Tower
 (B)- Building
 ●- VSAT 14 TOTAL



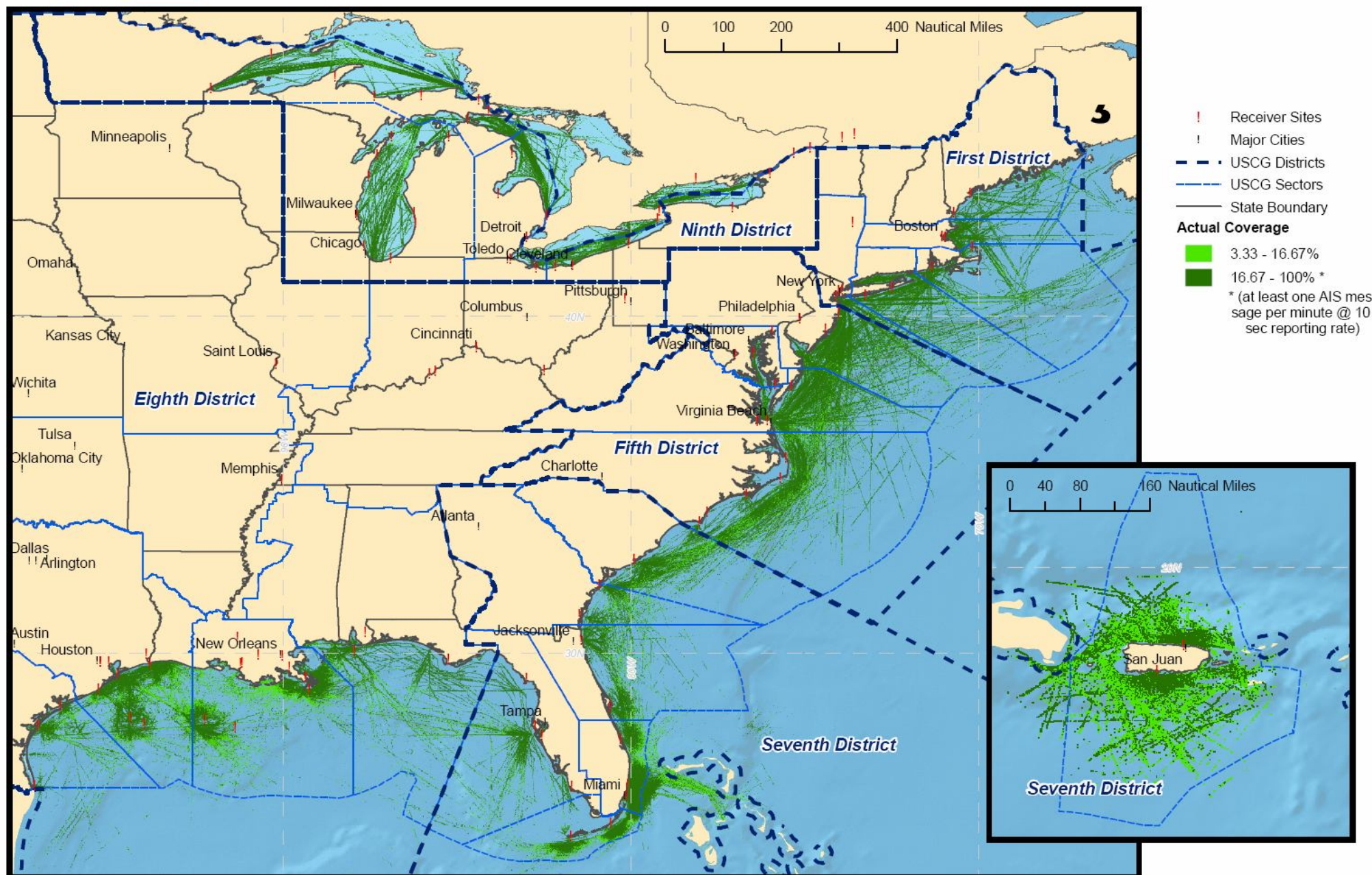


United States Coast Guard
U.S. Department of Homeland Security

EAST COAST AND PUERTO RICO

NAIS I-1 Actual Coverage for 01-16 October 2007

EastCoast_1mapa_27oct07.mxd

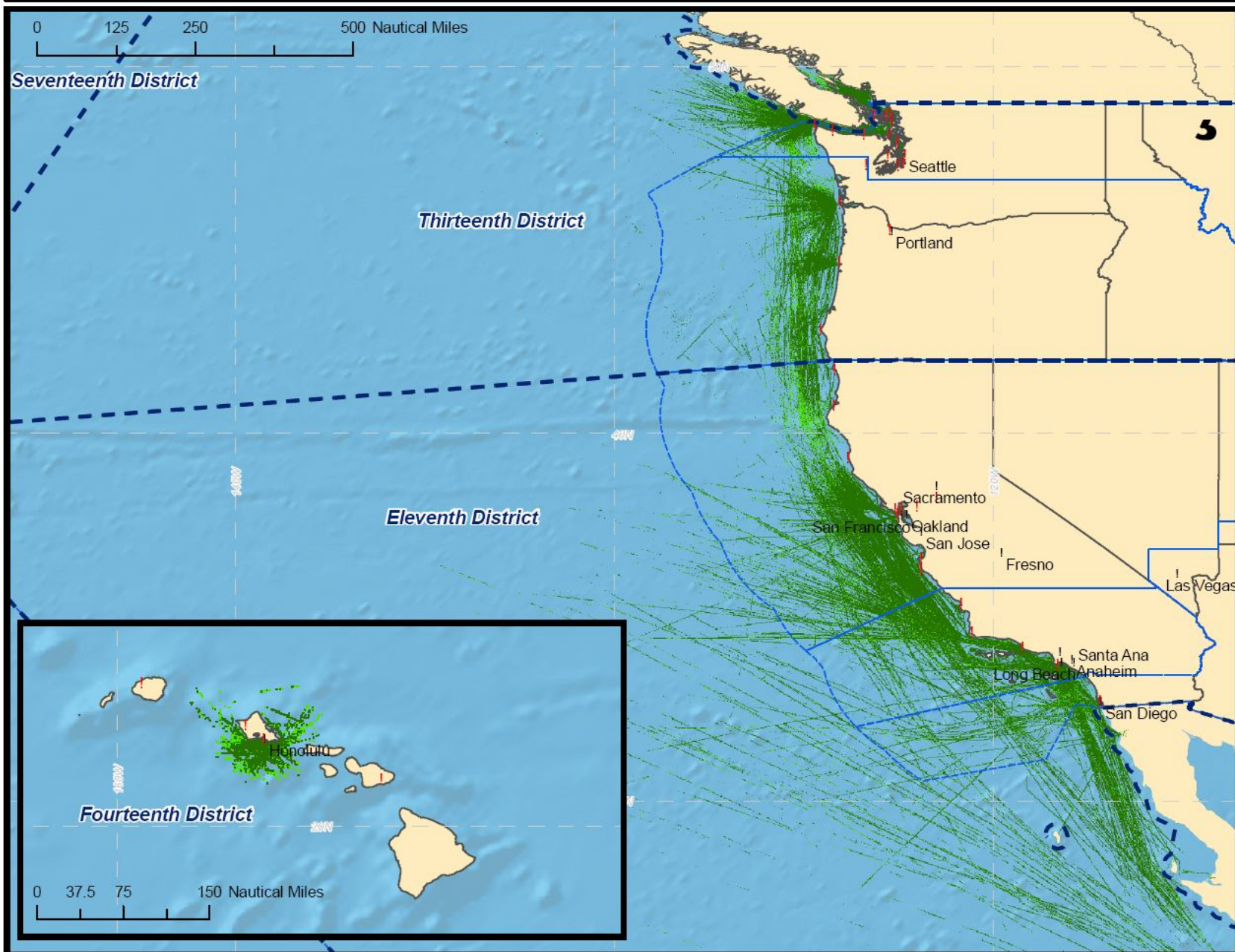




United States Coast Guard
U.S. Department of Homeland Security

WEST COAST AND HAWAII

NAIS I-1 Actual Coverage for 01-16 October 2007



- ! Receiver Sites
- ! Major Cities
- - - USCG Districts
- - - USCG Sectors
- State Boundary

Actual Coverage

3.33 - 16.67%

16.67 - 100%

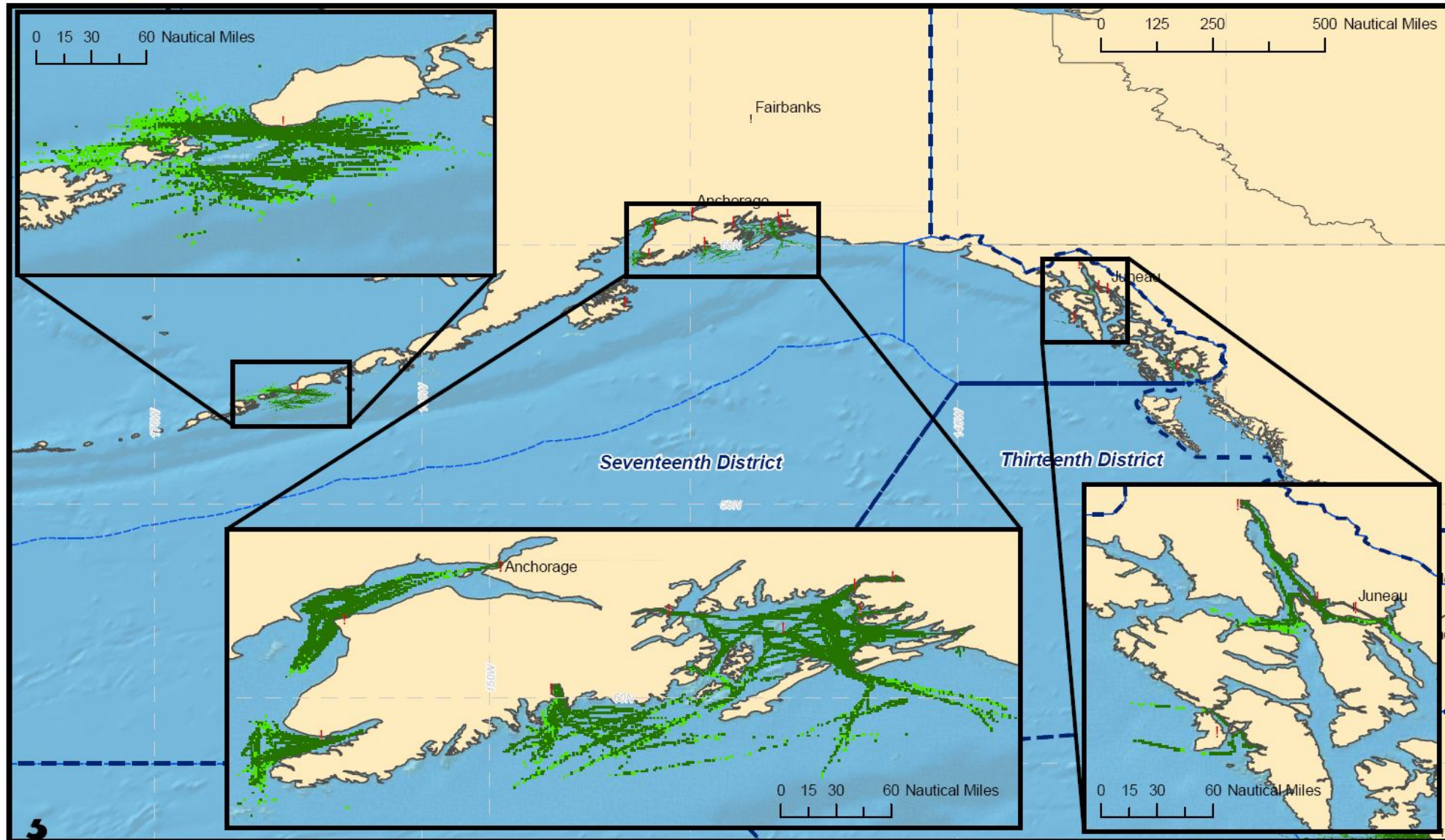
*(at least one AIS message per minute @ 10 sec reporting rate)



United States Coast Guard
U.S. Department of Homeland Security

ALASKA

NAIS I-1 Actual Coverage for 01-16 October 2007

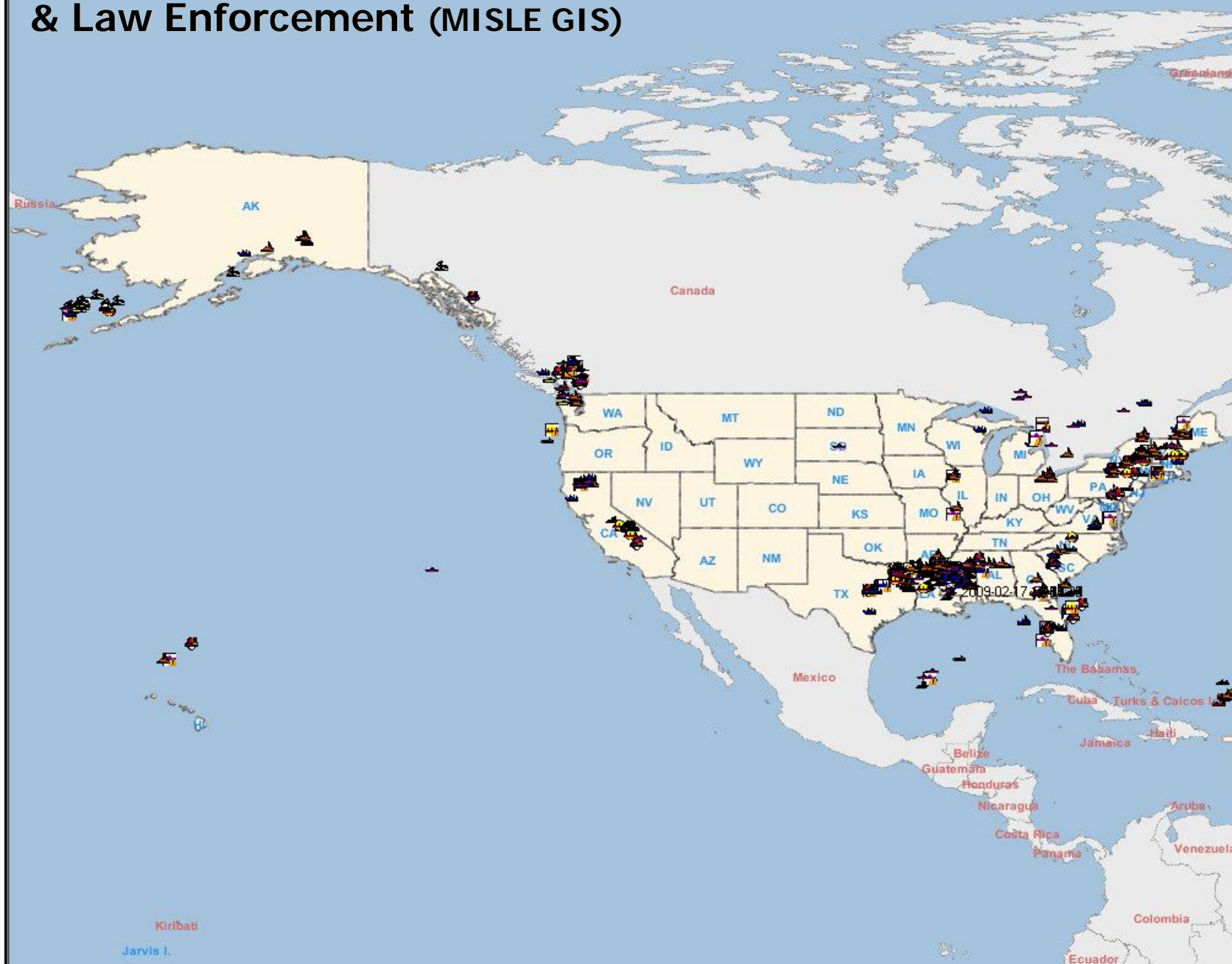


! Receiver Sites - - - USCG Districts **Actual Coverage**
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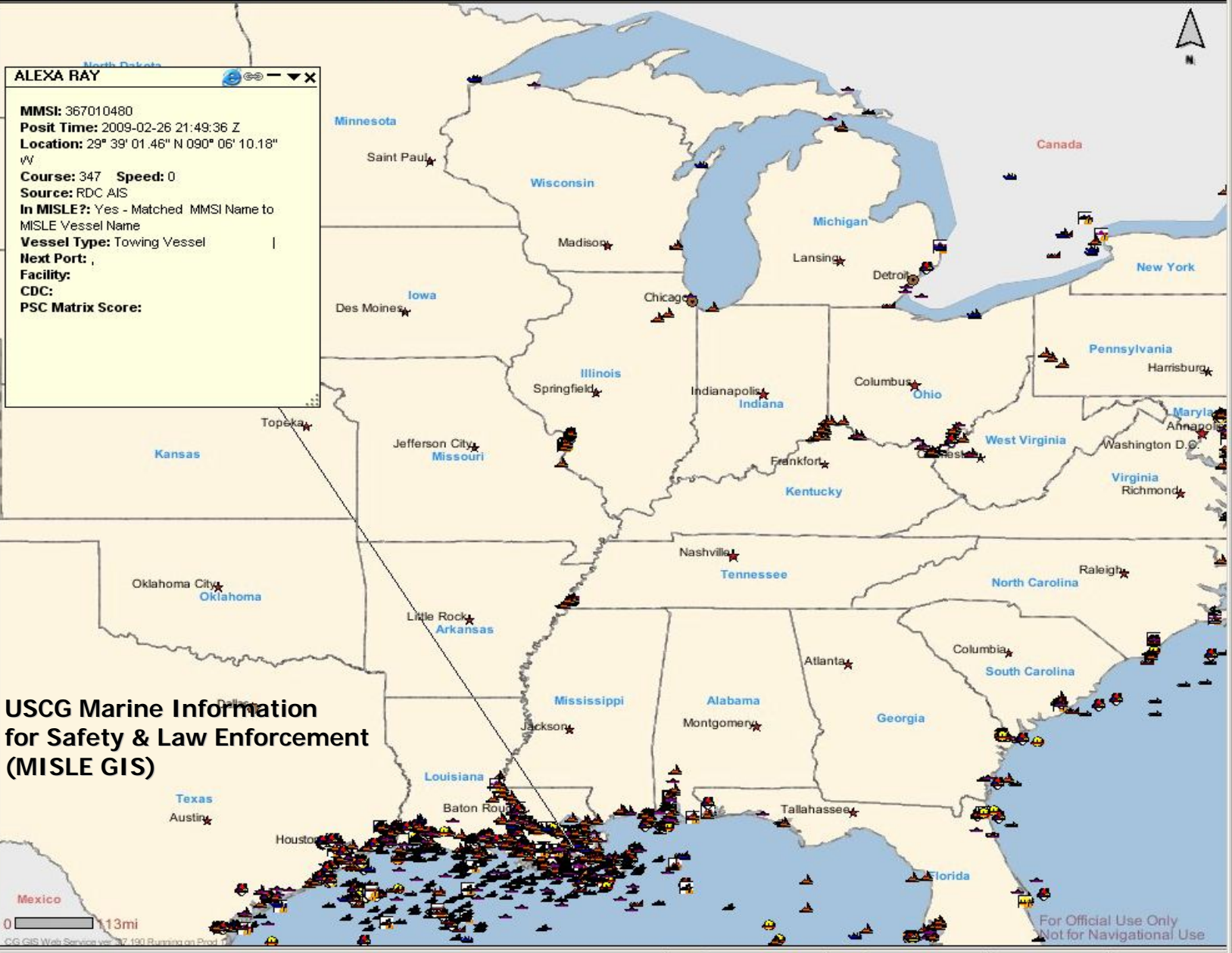
Vessel Tracking

- ▶ SOC Sites
- ▶ Icon Legend
- ▼ ☒ Vessel Tracks
 - <AIS Disclaimer>
 - <Create Custom Track>
 - ▼ ☒ Custom Tracks
 - ▶ ☒ HOS EXPRESS
 - ▼ ☒ Preconfigured Tracks
 - ▼ ☒ All Tracks (in Current View)
 - .VA.PILOT SWIFT
 - undetermined
 - undetermined
 - ==STADT BERLIN==
 - 64 326
 - 8EAPOWET
 - A B CENAC
 - A J BOURG
 - A.T HIGGINS
 - AARON VIZER
 - AARON CHARLES MCKINN
 - AARON JOSEPH
 - AARON MCCALL
 - AB YORK
 - ABACO TREASURE
 - ABDON CALLAIS
 - ABERDEEN
 - ABIGAIL CLAIRE
 - ABIGAIL RICHE
 - ABRAHAM LINCOLN
 - ABSOLUTELY
 - ACCARDO
 - ACCU 1
 - ACCU 5
 - ACCU 9
 - ACCU III
 - ACCU VI
 - ACCU VII
 - ACE HI
 - ACHILLES

USCG Marine Information for Safety & Law Enforcement (MISLE GIS)

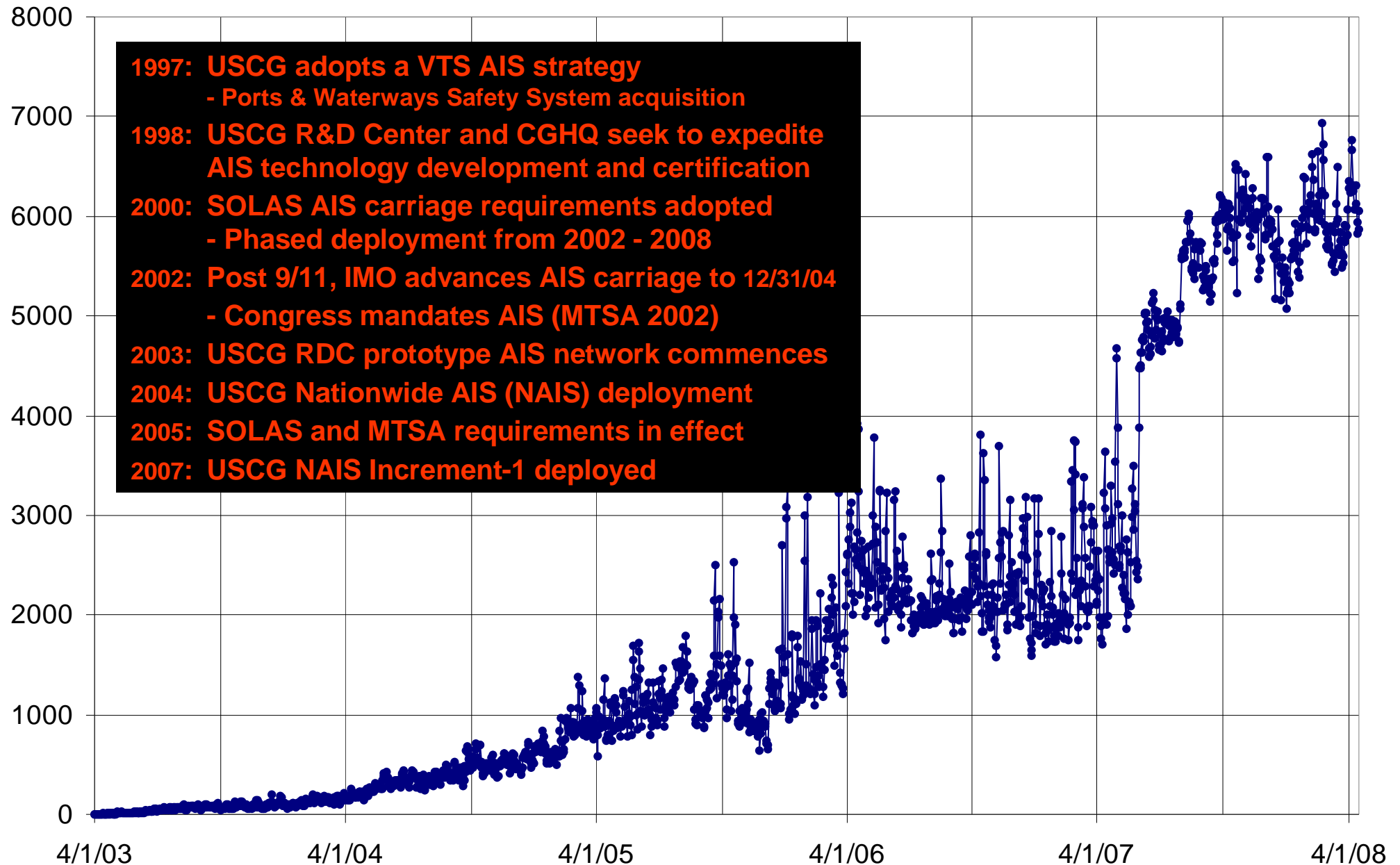


- Vessel Tracking
- ADMIRAL JACKSON
 - ADMIRAL LEE
 - ADMIRAL MILLER
 - ADRIATIC
 - ADRIATICA GRAECA
 - AECENTERGY II
 - AEGEAN
 - AESI TEST
 - AET DISCOVERY
 - AET ENDEAVOUR
 - AET HARRIS
 - AET NUECES
 - AET PIONEER
 - AET SHELBY
 - AETEXPLORER
 - AFRICAN LARK
 - AGAMEMNON
 - AGNES B
 - AIS.111287800
 - AIS.111737900
 - AIS.1126643
 - AIS.338088761
 - AIS.400000009
 - AJ CENAC
 - AJAX
 - AKILI
 - AKIRA CHOUEST
 - AL MIDDLETON
 - AL WEAVER
 - ALABAMA
 - ALAM GULA
 - ALBERT CENAC
 - ALBERT J.SETTOON
 - ALBERTO_TOPIC
 - ALEC SCOTT
 - ALEX B
 - ALEXA RAY**
 - ALEXANDRA DANOS
 - ALFRED A DEVALI II
 - ALFRED P.CENAC III
 - ALGOEAST
 - ALGOMARINE



Status Maximum track point count exceeded. Only 2500 points are displayed. Lat 31° 55' 16.02" N Lon 102° 04' 14.80" W Basic Pan

AIS units logged/tracked each day by USCG network





Other USCG AIS on goings...

International Standards (completed or in final stages)

- IEC 62288 – Nav Information on Shipboard Displays
- IEC 62388 – Radar
- IEC 62376 – ECDIS
- IEC 62287 – AIS Class B
- IEC 62320 – AIS Aid to Navigation (ATON)
- IEC 61097 – AIS Search & Rescue Transmitter (SART)
 - In Final Stage, we expect availability later this year
- IEC 61993-2 – AIS Class A, 2nd Generation AIS...in development...2010

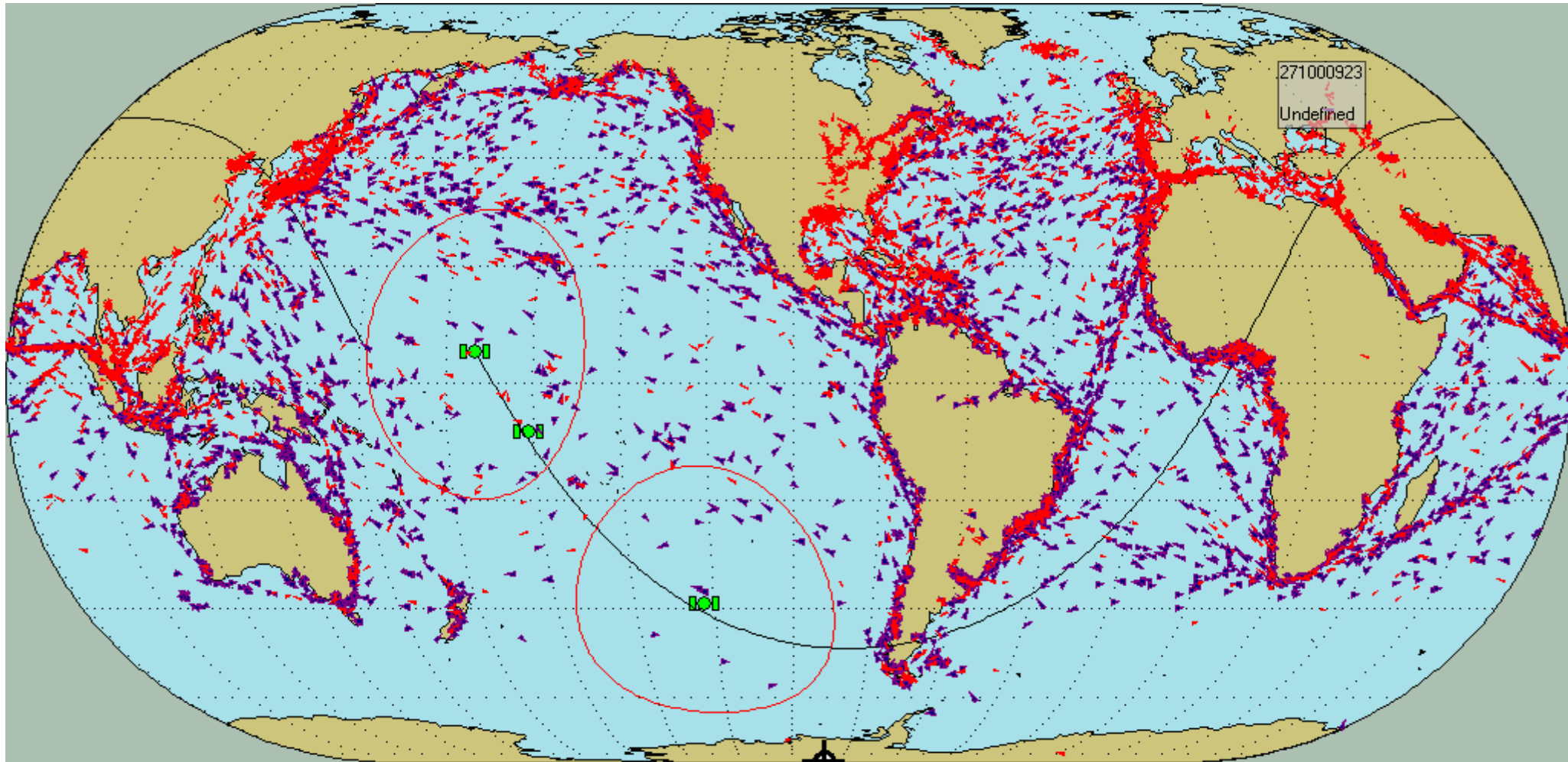
VTs AIS Binaries Project (Receive & Transmission of AIS from ashore)

- ACOE Real-Time Current Velocity (RTCV) – 10 sites in the works
- Tampa Bay (NOAA PORTS)
- Stellwagen Bank (Right Whale Notifications)

Nation-wide AIS Project (NAIS)

- Increment 1 – Completed Oct'07
- Increment 2 – Awarded Dec'08, IOC '11, FOC '14
- Increment 3 – Satellite reception tests in progress

Satellite Reception of AIS



05:22:38 NOV 08 UTC / Vessel count: 11703



Homeland
Security



Current AIS Prices



Furuno FA150 AIS Transponder

Product ID: FU1150-15 MFG ID: FA150

Furuno FA150 is a shipborne Universal AIS (Automatic Identification System) Transponder capable of exchanging navigation and ship data between own ship and other ships or coastal stations.

Availability: Usually ships within 24 hours

List Price ~~\$4,495.00~~ Our Price **\$3,999.95**

Qty: [+](#) [ADD TO CART](#)

[WISHLIST](#) [EMAIL](#)

\$699 – 3,999



FURUNO FA30 BLACK BOX AIS

List Price: ~~\$1,102.50~~

Our Price: \$805.00

You Save: ~~\$297.50~~ (27%)

SKU: FURFA30

In Stock

Usually ships in 1-2 business days

Milltech Marine Online Store

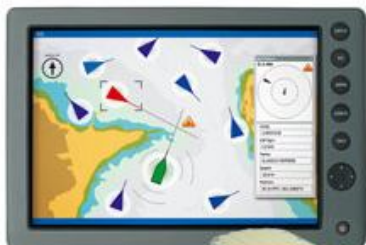


ACR Nauticast2 Class A AIS Transponder

The ACR Nauticast2 AIS Transponder is a class A unit that is specifically designed to fulfill non-SOLAS carriage requirements. This product is packaged in an All-in-One kit that includes the AIS transponder, VHF & GPS antennas, data cables, and pivot mount kit. An ECDIS port adapter is included which can directly interface with your ECDIS display or marine navigation package. The system can be ordered for use with 12 or 24 volt DC power.

ACR-2609 **\$2,999.00**

[Add to Cart](#)



With AIS (Display not included)



Without AIS

AIS-1000 Class B "Send and Receive" AIS Transponder

WEST MARINE **NEW!**

AIS-1000 Class B "Send and Receive" AIS Transponder

\$699.99 USD

[Add To Cart >>](#)

[+ Add AIS-1000 Class B "Send and Receive" AIS Transponder To Project List](#)



Simrad AI50 Automatic Identification System

Product ID: SM1139-00 MFG ID: 000-0135-00

Simrad AI50 AIS Automatic Identification System, See and be seen. Be in control - avoid collisions at sea. Simrad AI50 AIS transmit function works by broadcasting a digital signal that contains information about your boat's identity, speed and direction to other AIS equipped vessels in your area. Has now received FCC approval for the US.

Availability: Usually ships within 24 hours

List Price ~~\$1,627.00~~ Our Price **\$1,248.95**

Qty: [+](#) [ADD TO CART](#)

[ZOOM](#) [WISHLIST](#) [EMAIL](#)



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SOLAS/ECDIS/ECS rules...

- **SOLAS Chp. V changes took effect 2000**
- **IMO HSC mandates ECDIS**
- **IMO to mandate ECDIS on others by 2012**
- **CG&MT Act of 2004 mandates ECS in US**
- **U.S. ECS rulemaking in development**
 - **Will become part of SOLAS rulemaking**



United States Coast Guard

Waterway Management

Thank You

 Questions

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